

Jorge L. Pineda

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EDUCATION:

Ph. D., Astronomy, University of Bonn, Germany, 2007.
M.S., Astronomy, University of Chile, Chile, 2003.
B.S., Physics and Astronomy, University of Chile, 2002

PROFESSIONAL EXPERIENCE:

CURRENT POSITIONS:

2011–present: Scientist, Jet Propulsion Laboratory, California Institute of Technology

PREVIOUS POSITIONS:

2008–2011: Postdoc, Jet Propulsion Laboratory, California Institute of Technology
2007–2008: Postdoc, Angelander Institut fuer Astronomie, University of Bonn

AWARDS:

2014: JPL Ed Stone Award for Outstanding Publication
2014: JPL RT&D Research Poster Award Recipient
2010: NASA Group Achievement Award
2002-2003: Grant MECESUP UCH0118 given by the Chilean Ministry of Education for M.S. Studies

MENTORING EXPERIENCE:

2013: co-mentored a JPL Summer Internship Program student. A peer-reviewed publication written by the student was published.

GRANTS:

FY15-FY17 co-I SOFIA Cycle 3 proposal: “SOFIA [CII] Observations of CNM Clouds”

FY15-FY17 co-I Astrophysical Data Analysis Program proposal “Dynamics of the Central Molecular Zone from [CII] Spectral Maps”

FY14-FY17 co-I “Reflight of the Stratospheric TeraHertz Observatory: STO-2”

FY14-FY16 co-I “A room-temperature all-solid-state 4.7 THz multiplied LO source to enable the heterodyne observation of interstellar neutral oxygen”

FY14-FY16 Science-PI SOFIA Cycle 2 proposal: “Determining the [CII] thickness of the galactic plane with SOFIA/GREAT”

FY14-FY16 co-I Astrophysical Data Analysis Program proposal: “Understanding Emission from the ISM in the Milky Way and Other Galaxies using [NII] and Other Tracers”

FY12-FY15 co-I Herschel OT2 Proposal: “*Probing Galactic Spiral Arm Tangencies with [CII]*”

FY12-FY15 co-I Herschel OT2 Proposal: “*Herschel [NII] Observations to Define the Source of [CII] Emission*”

FY13-FY14: co-I SOFIA Cycle 1 proposal: “Dynamics of the CMZ: Giant Magnetic Loops connection in the Galactic Center”

FY13-FY14: co-I SOFIA Cycle 1 proposal: “Proving Molecular Cloud Accretion and Envelopes with Velocity-Resolved CII lines observed with SOFIA/GREAT”

FY11-FY13: PI Herschel OT1 Proposal: “Characterizing the life cycle of interstellar matter in the Magellanic Clouds with CII and CI”

FY11-FY13: co-I Herschel OT1 Proposal: “Structure of translucent clouds observed with HIFI [CII] 1.9THz and in H2 in absorption by FUSE”

FY11-FY13: co-I Herschel OT1 Proposal: “HIFI studies of the small-scale structures in the Galactic diffuse clouds with [CII] and [CI]”

FY11-FY13: co-I Herschel OT1 Proposal: “The Structure of a Molecular Cloud Boundary”

FY11-FY13: co-I Herschel OT1 Proposal: “The physical conditions of star formation

at low metallicity: the Magellanic clouds as corner stones”

FY11-FY13: co-I Fermi proposal:” Balancing the Budget of Milky Way Baryons with Herschel and Fermi”

Meetings Organized:

2014 Keck Institute for Space Studies workshop: “Bridging the Gap: Observations and Theory of Star Formation Meet on Large and Small Scales”

2014 Jet Propulsion Laboratory Science Fair.

2012 Jet Propulsion Laboratory Science Fair.

2011 Jet Propulsion Laboratory Science Fair.

Invited Peer- Reviews:

August 2014: Manuscript submitted to the Astronomy and Astrophysics journal.

July 2014: Manuscript submitted to the Monthly Notices of the Royal Astronomical Society.

July 2014: Manuscript submitted to the Astrophysical Journal.

May 2014: Board member for reviewing proposals for the Jet Propulsion Laboratory SURP Research initiative program.

August 2013: Manuscript submitted to the Publications of the Astronomical Society of Australia journal.

July 2013: Proposal submitted to the Jet Propulsion Laboratory Research and Technology Development fund.

September 2011: Proposal submitted to the Jet Propulsion Laboratory Research and Technology Development fund.

July 2011: Manuscript submitted to the Astrophysical Journal.

March 2011: Manuscript submitted to the Astrophysical Journal.

April 2005: Proposal submitted James Clerk Maxwell Telescope; Canadian Time Allocation Group.

Press Releases:

2013: “There is more Gas in the Galaxy than Dreamt of by Astronomers.”
European Space Agency press release.

2013: “Shining a Light on Cool Pools of Gas in the Galaxy” NASA press release.

2011: “Astronomers look to neighboring galaxy for star formation insight”,
University of Illinois at Urbana-Champaign press release.

CONFERENCES:

Invited Review Talks:

July 2014, Title: "What We Learned from Surveying the Galaxy in [CII] with Herschel HIFI" in SFB956 Colloquium Series, Physikalische Institute, Universität zu Köln, Cologne, Germany

July 2013, Title: “The Distribution of the Milky Way ISM as revealed by the [CII] 158um line ” in “Phases of the ISM - MPIA Summer Conference 2013”, Heidelberg, Germany

February 2013, Title: “[CII] from the diffuse medium and as tracer of CO-dark molecular gas” in C+ as an Astronomical Tool, Leiden, The Netherlands

Jun 2012, Title: “Herschel Spectroscopy of LMC & SMC” in Mega-SAGE collaboration Meeting, Tokyo, Japan

Contributed Talks:

September 2011, Title: “The Distribution of [CII] 158um emission in the Milky Way revealed by Herschel HIFI” in The Milky Way in the Herschel Era, Rome, Italy

September 2010, Title: “The relation between gas and dust in the Taurus Molecular Cloud” in The 5th Zermatt ISM Symposium, Conditions and impact of star formation: New results with Herschel and beyond, Zermatt, Switzerland

PEER-REVIEWED PUBLICATIONS

1. **Pineda, J. L.**, Langer, W. D., Goldsmith. 2014, GOTC+ [CII] Galactic Plane Survey II: [CII] as a Tracer of Star Formation, *A&A*, 570, AA121.
2. **Pineda, J. L.**, Langer, W. D., Velusamy,T., Goldsmith. 2013, GOTC+ [CII] Galactic Plane Survey I: The Global Distribution of ISM Gas Components *A&A*, 554, A103.

3. **Pineda, J.L.**, Mizuno, N., Röllig, M., et al., Submillimeter line emission from LMC 30 Doradus: The impact of a starburst on a low-metallicity environment, 2012, *A&A*, 544, A84.
4. **Pineda, J. L.** Velusamy,T., Langer, W. D., Goldsmith, P. F., Li. D. & Yorke, H.W. 2010. A Sample of [CII] Clouds Tracing Dense Clouds in Weak FUV Fields. *A&A*, 521, L19.
5. **Pineda, J.L.**, Goldsmith, P.F., Chapman, N.L., Li, D., Snell, R., Cambr'esy, L. & Brunt, C. 2010. The Relation between Dust and Gas in the Taurus Molecular Cloud. *ApJ*, 721, 686
6. **Pineda, J. L.**, Ott, J., Klein, U., Wong, T., Muller, E., & Hughes, A. 2009. The Influence of Far-Ultraviolet Radiation on the Properties of Molecular Clouds in the 30 Dor Region of the Large Magellanic Cloud. *ApJ*, 703, 736.
7. **Pineda, J.L.**, Mizuno,N., Stutzki, J., Cubick,M., et al. 2008. Submillimeter Line Emission from LMC N159W: a Dense, Clumpy PDR in a Low Metal licity Environment. *A&A*, 482, 197.
8. **Pineda, J. L.**, & Bensch, F. 2007. Photon-dominated region modeling of the CO and [CI] line emission in Barnard 68. *A&A*, 470, 615.
9. Orr, M., Pineda, J. L., & Goldsmith, P. 2014, Photon-dominated Region Modeling of the [C I], [C II], and CO Line Emission from a Boundary in the Taurus Molecular Cloud *ApJ j*, 795, 26
10. Anderson, C.N., Meier, D.S., Ott, J., [7 authors], **Pineda, J. L.**, Seale,J. From Gas to Stars in Energetic Environments: Dense Gas Clumps in the 30 Doradus Region Within the Large Magellanic Cloud 2014, *ApJ*, 793, 37
11. Langer, W.D., **Pineda, J.L.**, & Velusamy, T. The scale height of gas traced by [CII] in the Galactic plane, 2014, *A&A* , 564, A101.
12. Langer, W. D.; Velusamy, T.; **Pineda, J. L.**; Willacy, K.; Goldsmith, P. F., A Herschel [C II] Galactic plane survey II: CO-dark H₂ in clouds, 2013, *A&A* 564, 101.
13. Burton, M; [7 Authors], **Pineda, J.L.**, The Mopra Southern Galactic Plane CO Survey, 2013, *PASA*, 30, 44
14. Goldsmith, P.F., Langer, W.D., **Pineda, J.L.**, & Velusamy, T. 2012,Collisional Excitation of the [C II] Fine Structure Transition in Interstellar Clouds, *ApJ*,203, 13
15. Seale, J.P., Looney, L.W., Wong, T., Ott, J., Klein, U., **Pineda, J.L.**, The Life and Death of Dense Molecular Clumps in the Large Magellanic Cloud, 2012, *ApJ*, 751, 42.
16. Velusamy, T., Langer, W.D., **Pineda, J.L.**, & Goldsmith, P.F., [CII] 158 μm line detection of the warm ionized medium in the Scutum-Crux spiral arm tangency, 2012, *A&A*, 541, L10.
17. Wong, T., Hughes, A., Ott, J., Muller, E., **Pineda, J.L.**, et al, The Magellanic Mopra Assessment (MAGMA). I. The Molecular Cloud Population of the Large Magellanic Cloud, 2011, *ApJS*, 197, 16.
18. Chapman, N.L., Goldsmith, P.~F., **Pineda, J.L.**, et al, The Magnetic Field in Taurus Probed by Infrared Polarization, 2011, *ApJ*, 741, 21.
19. Röllig, M. [27 authors], **Pineda, J.L.**, [6 authors] , Photon dominated regions in NGC 3603. [CI] and mid-J CO line emission, 2011, *A&A* , 525, A8.

20. Langer, W. D., Velusamy, T., **J. L. Pineda**, Goldsmith, P. F., Li. D. & Yorke, H.W. C+ Detection of Warm Dark Gas in Diffuse Clouds, 2010. *A&A*, 521, L17.
21. Velusamy, T., Langer, W. D., **J. L. Pineda**, Goldsmith, P. F., Li. D. & Yorke, H.W., [CII] Observations of H₂ Molecular Layers in Transition Clouds, 2010. *A&A*, 521, L18.
22. Whittet D.C.B., Goldsmith, P.F., **Pineda, J.L.**, 2010. The Uptake of Interestellar Gaseous CO Into Icy Grain Mantles in a Quiescent Dark Cloud. *ApJ*, 720, 259.
23. Tassis, K.; Christie, D. A.; Urban, A.; **Pineda, J. L.**; Mouschovias, T. Ch.; Yorke, H. W.; Martel, H. 2010. Do Lognormal Column-Density Distributions in Molecular Clouds Imply Supersonic Turbulence? *MNRAS*, 408, 1089.
24. Desai, K. M.; Chu, Y. -H.; Gruendl, R. A.; Drager, W.; Katz, M.; Wong, T.; Chen, C. -H. R.; Looney, L. W.; Hughes, A.; Muller, E.; Ott, J.; **Pineda, J. L.** 2010. Supernova Remnants and Star Formation in the Large Magellanic Cloud. *AJ*, 140, 584.
25. Roman-Duval, J. [21 authors], **Pineda, J.L.**, [2 authors] 2010. Dust/gas correlations from Herschel Observations. *A&A*, 518, 74.
26. Hughes, A.; Wong, T.; Ott, J.; Muller, E.; **Pineda, J. L.** et al. 2010. Physical properties of giant molecular clouds in the Large Magellanic Cloud. *MNRAS*, 873.
27. Muller, E., Ott, J., Hughes, A., **Pineda, J. L.**, & Wong, T. 2009. Characterizing the Low-Mass Molecular Component in the Northern Small Magellanic Cloud. *ApJ*, 712, 1248.
28. Mizuno, Y., [9 authors], **Pineda, J.L.**, [21 authors], 2009. Warm and Dense Molecular Gas in the N159 Region: 12CO J=4-3 and 13CO J=3-2 Observations with NANTEN2 and ASTE. *PASJ*, 62, 51.
29. Wong, T., [6 authors], **Pineda, J.L.**, [5 authors], 2009. Molecular and Atomic Gas in the Large Magellanic Cloud. I. Conditions for CO Detection. *ApJ*, 696, 370.
30. Ott, J, Wong, T, **Pineda, J.L.** et al. The Molecular Ridge Close to 30 Doradus in the Large Magellanic Cloud, *PASA*, 25, 129.
31. Hitschfeld, M. [22 authors], **Pineda, J.L.**, [9 authors] 2008. 12 CO 4-3 and [CI] 1-0 at the centers of NGC 4945 and Circinus. *A&A*, 479, 75.
32. Kramer, C. [24 Authors], **Pineda, J. L.**, [7 authors] 2008, Clumpy Photon-Dominated Regions in Carina. I. [C I] and Mid-J CO Lines in Two 4' Fields, *A & A*, 477, 547.
33. Minamidani, T., [14 authors], Pineda, J. L., [12 authors], 2008. Sub-millimeter Observations of Giant Molecular Clouds in the LMC: Temperature and Density as Determined from J = 3 → 2 and J = 1 → 0 Transitions, *Ap. JS*, S, 175, 485.
34. Dickinson, C., Casassus, S., **Pineda, J. L.**, Pearson, T. J., Readhead, A. C. S., & Davies, R. D. 2006. An Upper Limit on Anomalous Dust Emission at 31 GHz in the Diffuse Cloud [LPH96] 201.663+1.643. *ApJL*, 643, L111.

Conference Proceedings

1. Galactic Observations of Terahertz C⁺ (GOT C+): [CII] Detection of Warm "Dark Gas" in the ISM

Langer, W. D., Velusamy, T., **Pineda, J. L.**, et al. 2011, EAS Publications Series, 52, 161

2. The Relation Between Dust and Gas in the Taurus Molecular Cloud

Pineda, J.L., Goldsmith, P.F., Chapman, N.L., et al. 2011, EAS Publications Series, 52, 157

3. C+/CO Transitions in the Diffuse ISM: Transitional Cloud Sample from the GOTC+ Survey of [CII] in the inner Galaxy at $|l| = -30\text{deg}$ to 30deg

Velusamy, T., Pineda, J.L., Langer, W.D., Willacy, K., & Goldsmith, P.F. 2011, IAU Symposium, 280, 370P

4. Carbon Chemistry in Transitional Clouds from the GOT C+ Survey of CII 158 micron Emission in the Galactic Plane

Langer, W.D., Velusamy, T., Pineda, J. L., Willacy, K., & Goldsmith, P.F. 2011, IAU Symposium, 280

5. The CO Isotope Ratio of the Large Magellanic Cloud

Wyss, S.h, Ott, J., Meier, D., Wong, T., Hughes, A., Pineda, J. L. & Muller, E., American Astronomical Society, AAS Meeting 217, 251.26, Bulletin of the American Astronomical Society, Vol. 43, 2011, poster presentation.

6. Herschel Observations of C+ in the Vicinity of Star Forming complexes in the Galactic Plane

Pineda, J.L., Velusamy, T., Langer, W., Goldsmith, P., Li, D., Yorke, H., American Astronomical Society, AAS Meeting 216, 412.02, poster presentation.

7. Galactic Observations of Terahertz C+ (GOT C+): First Results: Inner Galaxy Survey

Langer, W.D., Velusamy, T., Pineda, J.L., Goldsmith, P., Li, D., Yorke, American Astronomical Society, AAS Meeting 216, 412.06, poster presentation.

8. GOT C+ Survey of Transition Clouds in the Inner Galaxy

Velusamy, T., Langer, W. D., Pineda, J. L., Goldsmith, P. F., Li, D., Yorke, H. W., American Astronomical Society, AAS Meeting 216, 412.04, poster presentation.

9. MAGMA: Molecular Gas Properties of the Large and Small Magellanic Clouds

Ott, J., Wong, T., Hughes, A., Pineda, J. L., & Muller, E. 2009, IAU XXVII General Assembly, Rio de Janeiro, Brazil, poster presentation.

10. Submillimeter line emission from LMC N159W: a dense, clumpy PDR in a low metallicity environment

Pineda, J. L., Mizuno, N., Stutzki, J., Cubick, M., The Nanten2 Collaboration EAS Publications Series, Volume 31, 2008, pp.197-198

11. The Correlation Between CO and HI Emission in the Large Magellanic Cloud

Wong, T., Fukui, Y., Kawamura, A., Mizuno, N., Hughes, A., Ott, J., Muller, E., **Pineda, J. L.**, Staveley-Smith, L., Kim, S., Mizuno, Y., & Murai, M. 2008, IAU Symposium 256: "The Magellanic System: Stars, Gas, and Galaxies", (Keele, UK), poster presentation.

12. Properties of LMC Molecular Clouds from MAGMA, the Magellanic Mopra Assessment

Hughes, A., Wong, T., Muller, E., **Pineda, J. L.**, Ott, J., & the MAGMA collaboration 2008, IAU Symposium 256: "The Magellanic System: Stars, Gas, and Galaxies", (Keele, UK), poster presentation.

13. Sub-mm observations of GMCs in the SMC with NANTEN2

Mizuno, N. [3 authors], **Pineda, J.L.**, [13 authors] IAU Symposium 256: "The Magellanic System: Stars, Gas, and Galaxies", (Keele, UK), oral presentation.

14. Molecular Cloud and Star Formation Near the Vigorously Star Forming 30 Doradus Region in the Large Magellanic Cloud

Ott, J., **Pineda, J. L.**, Wong, T., Hughes, A., & Muller, E. 2008, IAU 255: "Low-Metallicity Star Formation: from the First Stars to Dwarf Galaxies", oral contribution.

15. The Molecular Ridge South of 30 Doradus: A Mopra and ATCA Endeavour

Ott, J., Wong, T., **Pineda, J.L.**, Hughes, A., & Muller, E. 2007, "Elizabeth and Frederick White Conference on the Magellanic System" (Sydney, Australia), oral presentation.

16. The Magellanic Mopra Molecular Line Survey

Muller, E., Hughes, A., Ott, J., Wong, T., & **Pineda, J.L.** 2006, "The Magellanic Clouds and dSph satellites: a nearby laboratory for galaxy evolution" conference (Vienna, Austria), poster presentation.

17. Mapping Molecular Gas in the Magellanic Clouds

Ott, J., **Pineda, J.L.**, Wong, T., Hughes, A., & Muller, E. 2006, "IAU General Assembly, Symposium S237 Triggered Star Formation in a Turbulent ISM" (Prague, Czech Republic) poster presentation.

18. Testing spherical PDR models: Barnard 68 as example of an (almost) perfect spherical clump in the diffuse Galactic radiation field

Pineda, J. L., Bensch, F. 2007, Molecules in Space and Laboratory, meeting held in Paris, France, May 14-18, 2007. Editors: J.L. Lemaire, F. Combes. Publisher: S. Diana., p.35.

19. Mapping Molecular Gas in the Magellanic Clouds

Ott, J., **Pineda, J. L.**, Wong, T., Hughes, A., & Muller, E. 2006, IAU Symposium, 237

20. Shining a Bright Light on Cold Gas in the Magellanic Clouds.

Ott, J., **Pineda, J. L.**, Wong, T., Hughes, A., & Muller, E. Science Highlight in "ATNF Annual Report 2005", p 32

21. Large scale mapping of molecular gas in the vicinity of 30 Doradus in the Large

Magellanic Cloud Pineda, J. L., Ott, J., Wong, T., Henkel, C., Fukui, Y., Klein, U. et al. 2005, Astronomische Nachrichten, 326, 528

22. Photon Dominated Region Modelling of Barnard 68.

Pineda, J. L., & Bensch, F. 2005, Astronomische Nachrichten, 326, 664

23. Photon Dominated Region Modelling of Barnard 68.

Pineda, J. L., & Bensch, F. 2005, IAU Symposium, 231, 55